

What is claimed is:

In a wireless communication system including at least one Packet Control Function (PCF) and at least one Packet Data Servicing Node (PDSN), a method for selecting a PDSN for packet data communications with a first mobile station (MS), the method comprising:

- generating a record of unique PDSN Id numbers; and
- selecting a PDSN in response to the number of PDSN Id numbers in the record.

2. The method of claim 1 further comprising:
10 assigning a unique MS identification number (Id) to the first
MS; and
in which the selection of the PDSN is responsive to the first
MS Id.

3. The method of claim 2 wherein the system includes n PDSNs, with each PDSN in the system having a unique Internet protocol (IP) address, in which the generation of the record of PDSN addresses includes creating a table with an ordered sequence of the PDSN Id numbers cross-referenced to the IP addresses.

4. The method of claim 3 in which the selection of the
20 PDSN includes dividing the first MS Id by the number of (n) PDSNs.

~~5.~~ The method of claim 4 in which the selection of the PDSN includes selecting the PDSN Id number equal to the remainder in the quotient, when the first MS Id divided by n .

6. The method of claim 5 further comprising:
the first MS communicating with a first PCF to request
packet data communications;

in which the generation of the table of PDSN addresses includes the first PCF having a table of cross-referenced PDSN Id numbers and IP addresses; and

in which the selection of the PDSN Id number includes using the table of the first PCF to calculate the PDSN Id number.

In a wireless communication system including a plurality of m Packet Control Functions (PCFs) and a plurality of n Packet Data Servicing Node (PDSNs) with unique Internet protocol (IP) addresses, a method for selecting a PDSN for packet data communications with a first mobile station (MS), the method comprising:

at each PCF, generating a record of PDSN Id numbers;
 assigning a unique MS identification number (Id) to the first
 MS; and
 selecting a first PDSN Id number in response to the first MS
 Id.

n ✓

in which the selection of the first PDSN Id number includes the first PDSN Id number being selected, regardless of which PCF is assigned.

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routing packet data communications between the first MS
and the IP address corresponding to the selected PDSN Id number,
through the assigned PCF.

- 5 14. The method of claim 13 wherein the first PCF is
connected to a IP address corresponding to the second PDSN Id number,
but not to the IP address corresponding the first PDSN identification
number; and

the method further comprising:

- 10 reselecting an alternate PDSN Id number, after the first
PDSN Id number has been calculated.

15 15. The method of claim 14 in which the reselection of an
alternate PDSN Id number includes varying the first PDSN Id number,
dividing that varied first PDSN Id number by n , and selecting the PDSN
Id number equal to the remainder in the quotient.

16. The method of claim 15 in which the first PDSN Id
number is randomly varied for the reselection of an alternate PDSN Id
number.

17. The method of claim 15 in which the first PDSN Id
number is varied by "1".

- 20 18. The method of claim 14 in which the reselection of an
alternate PDSN Id number includes:

removing the first PDSN Id number and associated IP
address from the table;

dividing the first MS Id by the number of PDSNs remaining
in the table; and

5 selecting the PDSN Id number equal to the remainder in the
quotient.

19. A wireless communication system for communicating
packet data, the system comprising:

10 a first mobile station (MS) having a unique identification
number (Id), the first MS having a transceiver for wireless packet data
communications;

a plurality of m Packet Control Functions (PCFs), each
having a port for packet data communications with MSs, and a port for
packet data communications with an Internet protocol (IP) address;

15 a plurality of n Packet Data Servicing Nodes (PDSNs), each
having a port for packet data communications with PCFs, each PDSN
having a unique IP address and a unique number;

in which each PCF includes a table with an ordered sequence
of the n PDSN Id numbers cross-referenced with IP address; and

20 in which each PCF selects a first PDSN Id number for packet
data communications with the first MS in response to the first MS Id.

20. The system of claim 19 in which each PCF selects the
first PDSN Id number in response to the number of PDSNs represented in
the table.

21. The system of claim 20 in which the PCF selects the first PDSN Id number by dividing the first MS Id by the number of (n) PDSNs in the table.

22. The system of claim 21 in which the PCF selects the first PDSN Id number by selecting the PDSN Id number equal to the remainder in the quotient, when the first MS Id divided by n .

23. The system of claim 22 in which a first PCF is connected to an IP address corresponding to the second PDSN Id number, and in which the first PCF is not connected to the IP address corresponding to the first PDSN Id number; and

in which the first PCF reselects an alternate PDSN Id number, after the first PDSN Id number has been calculated.

24. The system of claim 23 in which the first PCF reselection of an alternate PDSN Id number includes varying the first PDSN Id number, dividing the varied first PDSN Id number by n , and selecting the PDSN Id number equal to the remainder in the quotient.

25. The system of claim 24 in which the first PCF randomly varies the first PDSN Id number for reselection of an alternate PDSN Id number.

26. The system of claim 24 in which the first PCF varies the first PDSN Id number by "1".

27. The system of claim 23 in which the first PCF reselects an alternate PDSN Id number by removing the first PDSN Id number and associated IP address from the table, dividing the first MS Id by the number of PDSNs remaining in the table, and selecting the PDSN Id number equal to the remainder in the quotient.

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